Maryland Freight System Performance Annual Report

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Maryland Department of Transportation

Reporting timeframes: calendar year 2013 and fiscal year 2013

Published October 2014

The staff of the Maryland Department of Transportation Office of Freight and Multimodalism prepared this 2014 update. The information and data provided herein are courtesy of the modal administrations: State Highway Administration (SHA), Motor Vehicle Administration (MVA), Maryland Port Administration (MPA), Maryland Aviation Administration (MAA), Maryland Transit Administration (MTA), and the Maryland Transportation Authority (MDTA).

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Introduction

The Maryland Department of Transportation (MDOT) benchmarks and tracks progress in attaining its vision and mission to provide a well-maintained, sustainable and multimodal transportation system that facilitates the safe, convenient, affordable, and efficient movement of people, goods, and services within and between population and business centers. The *2035 Maryland Transportation Plan* (2035MTP) outlines six key goals for MDOT's strategic framework in making future transportation decisions and investments: safety and security, system preservation and performance, quality of service, community vitality, environmental stewardship, and economic prosperity. The *Maryland Statewide Freight Plan* in turn, identifies policies and projects to guide Maryland's development and stewardship of the freight system. The *Statewide Freight Plan* provides a lynchpin for all of the modal plans regarding freight from the Port of Baltimore business plans to the SHA/MDTA's *Freight Implementation Plan* and the MTA's *Freight Lines Strategic Plan*.

MDOT reports progress in attaining its goals in the department-wide Maryland *Annual Attainment Report*. This freight performance measure report provides a logical addition by describing measures on the needs and objectives of the freight transportation system.

This report highlights leading indicators corresponding to the freight system performance within the MTP goal areas. The report identifies freight performance measures for each modal administration within MDOT, although it does not inventory all freight activity and initiatives.

Overall, the report shows that MDOT is achieving some of the freight goals it outlined in the 2009 *Statewide Freight Plan*. There are continuing opportunities for growth and improvement for freight transportation – making highways safer, utilizing rail options, and increasing marine and port landside and seaside capacity – to name a few. MDOT will be undertaking a strategic look at goods movement in the upcoming year. With guidance and support from stakeholders and advisors, MDOT will look to develop recommendations for the use of innovative economic development freight funding mechanisms, increase public awareness of the importance of goods movement to the economy and quality of life; and evaluate the integration of Maryland's freight network with neighboring states.

Maryland's Freight Story

Maryland's freight story continues to be one of economic growth, benefiting businesses and consumers in Maryland and throughout the United States and the world. Significant amounts of freight move to, from, and through Maryland every day. Emerging technology and bioscience industries in the Baltimore/Washington and I-270 corridors rely on time sensitive movement of valuable resources.

More than half of freight within the State in terms of tonnage is rock, sand, and soil; consumer goods to and from warehouse and distribution facilities; and food products. Similar commodities, including primary metal, transportation equipment, lumber/wood, and chemicals account for more than half the value of Maryland's freight movements. These goods and commodities underscore the central role that agriculture, construction, and consumer spending play in Maryland's economy. MDOT continues to address impediments to the movement of goods and prepare for future population and economic growth that will place increasing demands on our freight system.

The trend toward leaner supply chains and changes in online retail require efficient roadway networks, warehouses, and intermodal facilities to ensure timely and cost-effective delivery. Planners and policymakers are paying special attention to population growth and related freight demand, increases in warehouse and distribution facilities in congested corridors, and growth in intermodal traffic, which is expected to increase with the completion of the Panama Canal expansion project in 2015. Distribution giant Amazon.com announced in 2013 a one million square foot distribution center in Southeast Baltimore City.

MPA Executive Director Jim White noted in *Port of Baltimore Magazine*, "If you can have a distribution facility near your port, it gives you a better chance to handle more cargo and grow jobs." With growth in freight related jobs comes the need for a robust freight transportation system.

Economic Benefit of Goods Movement

Maryland's economy is enhanced by a safe, efficient, and reliable freight network. Highways, port infrastructure, airport, and rails must be planned, designed, built, and maintained to good working condition with limited levels of congestion. Unpredictable congestion and delay reduces the reliability of delivery times, which leads to costlier freight movement. Tonnage data shows the demand that freight places on the system, and value data reflects the economic activity associated with freight. Last year, about 356 million tons of freight was transported to, from, within, and through Maryland, accounting for approximately $430 billion in value, a slight increase over the previous year.

A significant economic generator for Maryland is the Port of Baltimore, which is consistently ranked as the top port among 360 U.S. ports for handling autos and light trucks, farm and construction machinery, imported forest products, sugar, alumina and gypsum. Baltimore ranks second in the U.S. for exported coal. Overall, Baltimore is ranked ninth for the total dollar value of international cargo and 14th for international cargo tonnage. Business at the Port of Baltimore generates about 14,630 direct jobs, while about 108,000 jobs in Maryland are linked to port activities. The Port is responsible for $3

Automobile, heavy machinery, and farm equipment companies located in the Midwest, such as Mazda, John Deere, and Case New Holland, depend on reliable importing and exporting through the Port of Baltimore.

billion in personal wages and salary and more than $300 million in state and local taxes.

In September of 2013, Vice President Joe Biden visited the Port to announce a $10 million US Department of Transportation (USDOT) Transportation Investment Generating Economic Recovery (TIGER) grant to increase the Port's cargo handling capacity and provide rail access at the Fairfield and Masonville Marine Terminals. This project will use dredged material from the Port's Seagirt Marine Terminal access channel to fill an unused and antiquated basin and create a 7.6 acre cargo staging area in a prime location near the Masonville vessel berth. Rail access will also be enhanced at the Fairfield Terminal to improve and expand the Port's handling of automobiles and roll on / roll off equipment.

How Goods Move in Maryland

Every person and business relies on freight movements for their quality of life and work. Thus, the State of Maryland's investments in its freight system not only reap tremendous economic benefits, but also enhance the quality of Marylander's lives. MDOT strives to provide a world-class multimodal freight system on its highway, rail, maritime, and aviation systems to facilitate safe and reliable goods movement benefiting businesses and consumers in Maryland.

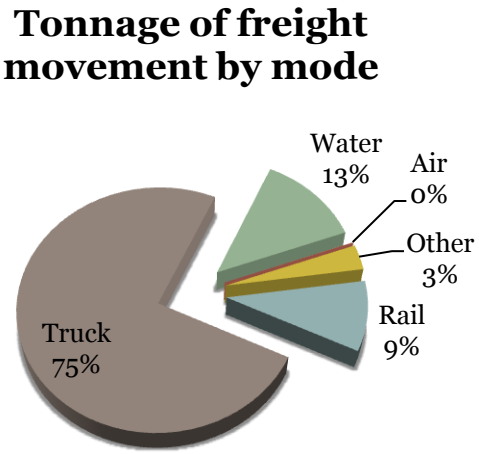


Figure 1 Percentage of freight by tonnage by mode. Source: 2014 Annual Attainment Report

Trucks carry the highest percentage of Maryland's overall freight by tonnage, with the remaining portion moving on rail, water, and in the air. Therefore, the State's highway network is critical to the competitiveness of Maryland businesses.

Trucks provide the final link between businesses and the freight network for goods travelling into, from, and within Maryland's borders. Due to Maryland's strategic location in the Mid-Atlantic region, trucks depend on I-81 and I-95 to move freight in and around the region. Alleviating congestion and providing safe operating conditions for trucks travelling on the freight corridors of Maryland benefits not only truckers, but all drivers as well.

Through the SHA and MDTA joint *(Highway) Freight Implementation Plan*, MDOT continues its data driven approach to future transportation investments that will enhance the efficient and safe movement of goods by commercial motor vehicle. Maximizing the efficiency of the highway system for goods movement through this Plan contributes to the economic health of Maryland by identifying strategies to reduce supply chain costs and increase reliable deliveries.

Railroads provide high-efficiency advantages and play the dominant role in the movement of certain commodities and a supporting role in the transportation of others. Two Class I railroads, Norfolk Southern (NS) and CSX Transportation (CSX), operate a combined

total of 676 miles of track that connect Maryland shippers to the regional and national rail network. Both railroads are increasing capacity along their corridors that will add to the economic competitiveness of shippers located in Maryland by enabling a higher volume of freight to move by rail. CSX and NS operate rail yards and transfer facilities throughout Maryland that provide jobs in local communities.

Multiple freight modes help rebuild oyster habitat. CSX partnered with the Maryland Department of Natural Resources and the Port of Baltimore to transport 112,500 tons of fossilized oyster shells from Florida to Maryland to rebuild oyster sanctuaries on the Eastern Shore. Once the shells reach the Port, they will be sent by barge to the sanctuaries.

The Maryland rail system serves the economy and population while linking some of the most important national corridors together, including Amtrak's Northeast Corridor (NEC), Norfolk Southern's Crescent Corridor, and CSX's National Gateway. Passenger and freight rail are connected through the shared use of the NEC, which demonstrates how rail freight efficiency is dependent on improvements to the passenger-rail owned corridor.

Complementing Maryland's Class I railroads is the shortline network. Shortline railroads provide cost effective solutions for importing/exporting raw materials, such as grain, paper, and fertilizer, and transporting goods to market.

Several shortline operators provide service on the Eastern Shore and central Maryland. Operations on the state-owned "Seaford to Cambridge" line, "Townsend to Chestertown" line, and the "Townsend to Centreville" line are provided by the Maryland and Delaware Railroad Company. The Canton Railroad Company is an industrial switcher carrier located in east Baltimore City and Baltimore County, Maryland. Canton was originally chartered in 1906. The railroad serves up to 30 shippers and the Port of Baltimore by providing switching service between them and the two Class I railroads.

In addition, Maryland Midland Railway, a division of Genesee and Wyoming, Inc. supplies businesses in central Maryland with interchange services to CSX that include movement of cement, coal, and forest products. The Bay Coast Railroad operates a barge service that transports railroad cars across the Chesapeake Bay between Cape Charles, Virginia and Norfolk, Virginia to serve business on the lower Delmarva Peninsula. Finally, the Winchester and Western Railroad in Washington County, Maryland, provides access to the NS network in Hagerstown and the CSX network in Martinsburg, West Virginia and Winchester, Virginia.

Complete multimodal freight movement in Maryland is rounded out by air cargo. As a major transportation hub, the Baltimore/Washington International Thurgood Marshall Airport (BWI Marshall) serves as a passenger and freight node for the region. Demand for air freight services is expected to grow as population and flights carrying goods grow. In July of 2013, Governor Martin O'Malley announced a $125 million three-year plan to further improve BWI Marshall. The multi-phase development plan provides for the construction of a new secure connector between Concourse D and Concourse E, new security checkpoint to serve domestic and international travelers, and airline gate reconfiguration to support additional international flights. These improvements are in addition to the multi-year, approximately $350 million airfield improvement program currently underway. BWI Marshall is also delivering a number of airfield reconstruction projects and Runway Safety Area (RSA) improvements.

The Motor Vehicle Administration plays an important role in the safe, efficient and reliable transport of freight on Maryland highways. The agency tests—via 13 MVA CDL skills courses and 11 career testing providers—and licenses approximately 175,000 commercial drivers and ensures that they are medically/physically qualified to operate commercial vehicles. For transport of hazardous materials, drivers must also apply for a license endorsement to include a criminal background check. Commercial vehicles registered in Maryland must have proof of insurance and participate in a preventive maintenance program. Maryland belongs to the International Registration Plan (IRP), which provides for apportioned registration fees based on mileage traveled in the base registration state and other contiguous states and ten Canadian provinces. Participation in the plan is mandatory for certain commercial vehicles. For the year ending June 30, 2014, Maryland collected $40 million in revenue through the IRP program. The IRP program encourages the greatest possible use of the highway system and provides valid registrations across member jurisdictions.

Freight System Performance

The following sections identify how the performance of the freight system in Maryland is measured in order to meet the six goal areas outlined in the *2035 MTP*.

Safety & security

Enhance the safety of the transportation system and provide a transportation system that is resilient to natural or man-made hazards. Measured by the effectiveness of regulations and enforcement programs to ensure safety.

System preservation and performance

Preserve and maintain Maryland's existing transportation infrastructure and assets. Measured by the freight infrastructure condition and capacity.

Quality of service

Enhance access to, and positive experience with, all MDOT transportation services. Measured by the reliability of the freight system and the cost of congestion to truckers.

Environmental stewardship

Ensure the delivery of the State's transportation infrastructure program conserves and enhances Maryland's natural, historical, and cultural resources. Measured by the connection between freight and clean air and water.

Economic prosperity

Support a healthy and competitive Maryland economy. Measured by the tonnage and value of freight moving in, out, and through Maryland.

Community vitality

Provide options for the movement of goods that support communities and quality of life. Measured by the number of intermodal containers moved by rail through the Port of Baltimore.

Freight System Performance
Highway

Maryland's highway system is the backbone of the goods movement network. The system connects freight-generating facilities to critical port, air, and rail links. Trucks deliver the first and last mile of freight traveling into, out of, and within Maryland's borders, by way of a network of Interstate, State, and local roads. Reliable and safe travel for trucks and the passenger vehicles that share the roads is key to safety and economic vitality.

The highway freight system in Maryland consists of:

- 900 miles of the Maryland Truck Route System - state controlled roads that connect suppliers to local markets and the local system to the broader region;
- 2,376 miles of the National Highway System and 908 miles of the National Truck Network, linking Maryland to the national economy; and
- 88 miles of intermodal connectors – roads that connect rail yards and ports to the greater freight network and the last-mile link to a free-flow, seamless freight transportation system.

Enhance the safety of trucks and truck drivers

Safety is a top priority for MDOT. The *Towards Zero Death* highway safety campaign helps spread the message that even one death on Maryland's roadways is too many. Through partnerships with law enforcement, MDOT ensures that the heavy trucks and the drivers who operate them are following stringent federal and state safety regulations.

GOAL: SAFETY & SECURITY - Highway

MEASURES:	CY2013*	TREND
Number of fatalities in traffic crashes involving heavy trucks* on all roads in Maryland.	58	A decrease from 70 in CY2012
Number of persons injured in traffic crashes involving heavy trucks* on all roads in Maryland. (Crash data for CY2013 is not complete at the time of publication.)	1,757	A decrease from 2,365 in CY2012
*Heavy trucks are defined as a single unit vehicle or combination vehicle in excess of 10,000 lbs. gross vehicle weight rating.		
Annual number of commercial vehicle safety inspections.	121,900	A steady increase from 11,723 in CY 2012 and 98,582 in CY2011
(Commercial vehicle inspections can be conducted on trucks weighing 10,001 or more pounds gross vehicle weight, or any size vehicle that is carrying a hazardous material in a quantity that requires placarding according to U.S. DOT regulations.)		
Source: SHA and MDOT		

Table 1 Highway Safety & Security measures

The *Smooth Operator* program is a public safety campaign that targets aggressive drivers in the District of Columbia and Maryland. The program uses the four "E's" to tackle aggressive driving: enforcement, education, evaluation and engineering.

In July 2013, *Smooth Operator* demonstrated the challenges that truck drivers have with car drivers that speed, follow too closely, lane-weave, run through stop signals, and improperly pass. Package delivery company UPS and Maryland state agencies teamed up to provide powerful visuals on braking distances and sight lines.

"When the (car) driver doesn't pay attention, gets stuck behind a truck, they get upset. Or when they go driving by a vehicle–a large truck–they're not thinking about, 'Can a truck see me?'"

Captain Norman Dofflemyer, Commander Maryland State Police Commercial Vehicle Enforcement Division.

Fatigued truck drivers are a major safety concern in Maryland and nationally. Many long distance and regional truck drivers stop mid-route in Maryland to obtain their federally mandated rest breaks. There are not enough truck parking spaces to meet the demand, leaving many drivers to park unsafely on the shoulders and ramps of interstates or risk driving while fatigued.

MEASURES:	CY2013
Number of available truck parking spaces	2,292
Peak Overnight Truck Parking volume (Snapshot of the number of trucks parked on shoulders and ramps and in Welcome Centers, rest areas, and park and ride lots statewide)	3,249
Source: SHA Truck Parking Counts	

Table 2 Highway Safety & Security measures

Sufficient truck parking availability helps reduce the risk of tired truck drivers traveling on Maryland's freight network, protects auto drivers from the potential hazard of a truck parked on the shoulder of a busy roadway, and improves highway mobility and reliability through designated infrastructure use. In addition to regulatory compliance checks, MDOT is working to support the trucking industry in mitigating truck driver fatigue by providing more safe havens for truck drivers across the state.

MDOT is active in identifying solutions to expand the number and capacity of truck parking facilities, and recognizes that the problem will not be resolved by public agency actions alone. The success of truck parking initiatives depends on developing relationships with key stakeholders and the public. The truck parking problem is statewide and national in scope, but the solutions are local and require coordination with local governments, communities, and the private sector.

Preserve and maintain the State's existing highway freight infrastructure and assets

The overall condition of truck routes and bridges reflects how well asset management strategies, improved operations, and technology sustain the quality and safety of the network. Preserving highway infrastructure helps to save the State's transportation assets and lower maintenance costs for trucking companies.

GOAL: SYSTEM PRESERVATION & PERFORMANCE - Highway

MEASURES:	2013	TREND
Number or percent of bridges that are structurally deficient	88 / 3% in CY 2013	Well below the target of 105 bridges
Percent of roadway miles with acceptable ride quality	86% in CY2013	Same as CY2012 and CY2011
Weighed vehicles found to be overweight	1% in federal FY2013	
Source: SHA and MDOT *Annual Attainment Report*		

Table 3 Highway System Preservation & Performance measures

SHA operates a network of electronic truck safety monitoring sites known as Virtual Weigh Stations (VWS). The primary function of the VWS network is to monitor vehicle weight activity. The technology also provides MDOT with other data such as speed, size and unsafe driving practices. The VWS sites are strategically placed on high volume truck routes to create an electronic safety web across the state.

The above image is a screen capture from the Virtual Weigh Station at US 301 northbound. Sensors in the pavement measure the truck and trailer to determine its overall weight and the weight on each set of axles. This information is communicated to nearby commercial vehicle enforcement personnel. If the vehicle is not in compliance with highway weight laws, the police can locate the truck and driver to perform an inspection.

Figure 2 Screen capture of Virtual Weigh Station.

Maintain and enhance reliable freight networks to keep trucking costs down

"Congested highways signal economic prosperity, but they also make travel times for businesses longer and less reliable." Jim Ward, President & CEO D.M. Bowman, Inc.

GOAL: QUALITY OF SERVICE - Highway

Improving traffic operations, roadway safety, and transit options for passengers are strategies to reduce congestion for freight and lead to lower costs for trucking. This, in turn, lowers the costs of goods to Maryland's families and businesses.

MEASURES:	CY2013	TREND
Truck Congestion Cost on freeways/expressways in the Baltimore/Washington Region	$147.5 million	A decrease from $167 million in CY2012
Amount of delay for trucks due to congestion on freeways/expressways	8%	First year of reporting this measure
Wasted fuel for trucks	$21.2 million	First year of reporting this measure
Truck user cost savings due to recurring congestion relief projects on state highways	$2.9 million	First year of reporting this measure
Percentage of the Maryland SHA network in overall preferred maintenance condition	83.4%	Slightly below the 84% target
Source: SHA and MDOT		

Table 4 Highway Quality of Service measures

Support trucking programs that conserve and enhance Maryland's natural resources

MDOT organizes internal operations to promote good stewardship of the environment. Through partnerships with the Maryland Energy Administration and the Maryland Department of the Environment, MDOT supports the following programs that promote energy savings and clean air:

GOAL: ENVIRONMENTAL STEWARDSHIP- Highway

- *Maryland Idle Reduction Grant Program -- financial assistance for the purchase and installation of idle reduction technology on trucks.* ***Over 100 grants*** *have been awarded since the program started in 2012.*
- *Maryland Electric Truck Voucher Program -- financial assistance for the purchase of new, all electric trucks registered in the state of Maryland.* ***14 awards*** *have been awarded since the program started in 2012.*
- *Maryland Natural Gas Voucher Program -- financial assistance for the purchase of new and converted natural gas vehicles registered in the state of Maryland.* ***13 awards*** *have been awarded since the program started in 2012.*

Table 5 Highway Environmental Stewardship

Freight System Performance
Rail

The rail freight system is an important transportation asset that provides access to local, regional, and national markets. Railroads provide high-efficiency advantages relative to other modes of goods movement. They play a dominant role in the movement of certain commodities and a supporting role in the transportation of others.

Maryland's freight rail system includes tracks, terminals, switching yards, sidings, and intermodal facilities. The railroad network in the state is approximately 1,157 miles long, comprised of two Class I freight railroads, four Class III shortline freight carriers, one switching/terminal railroad, and two passenger railroads (Amtrak and MARC). Three railroads, CSX Transportation (CSX), Norfolk Southern Railway, and the Maryland and Delaware Railroad (MDDE), account for roughly three quarters of the rail freight network mileage. The remaining one-quarter is owned by other short lines, rail operations on ports, or track that is banked by MDOT for future use.

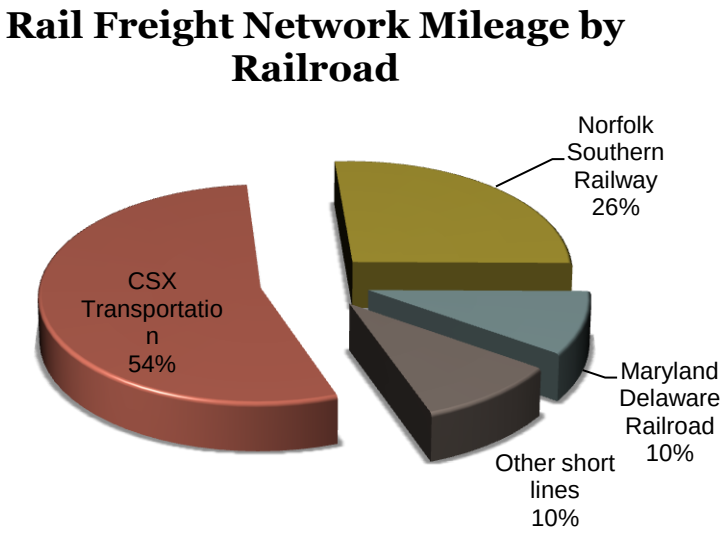


Figure 3 Rail freight network mileage by railroad

Rail freight system performance measures are provided in the following tables. Private ownership and operation of freight railroads makes measuring the performance of the freight rail system challenging because most of the data and information are proprietary to the railroads. Thus, the data presented herewith provides for information available to the public and public sector.

Overview of Maryland's Class I Railroads

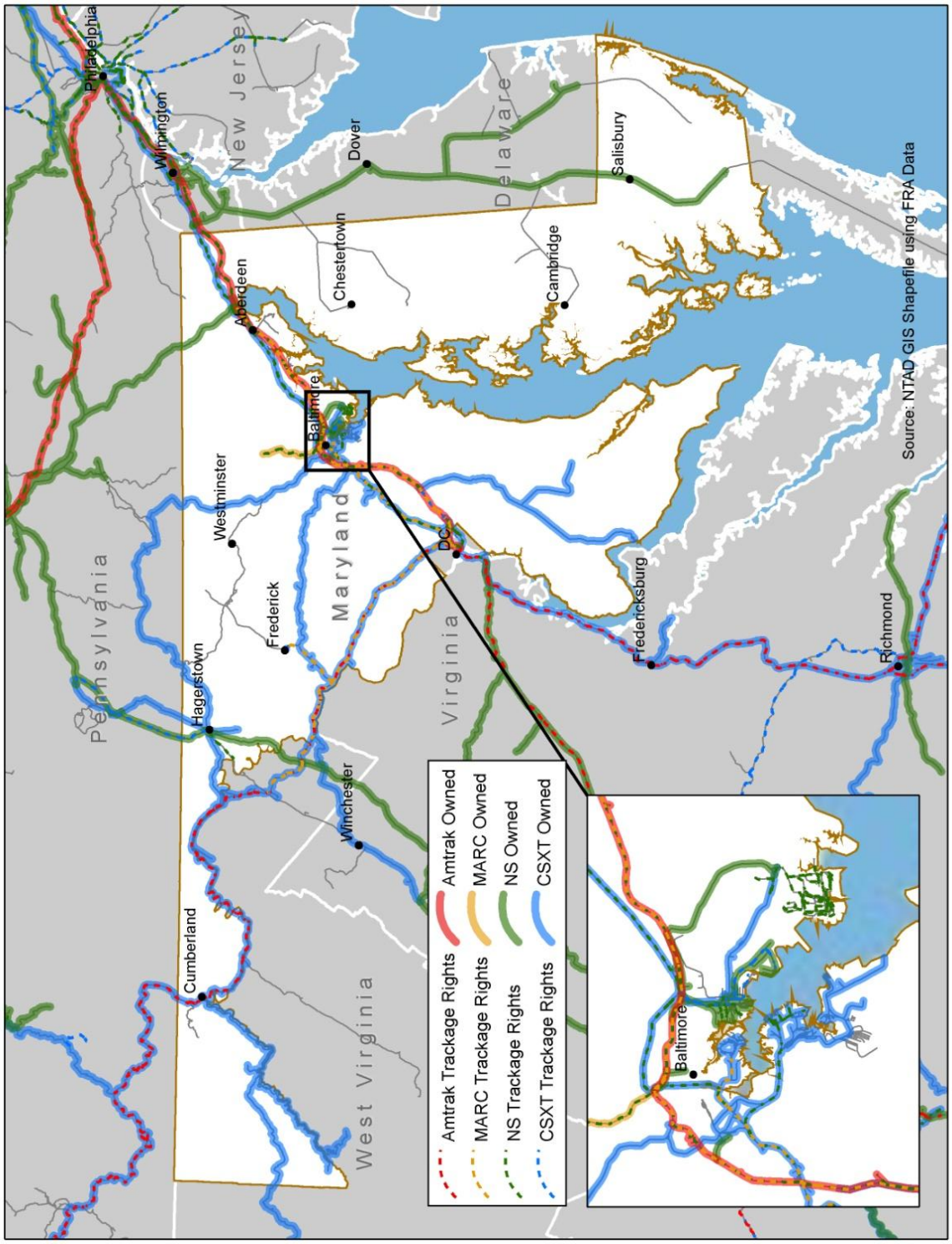


Figure 4 Overview of Maryland's Class I Railroads Source: Cambridge Systematics from the National Transportation Atlas Database using FRA data

Overview of Maryland's Class III and Terminal Railroads

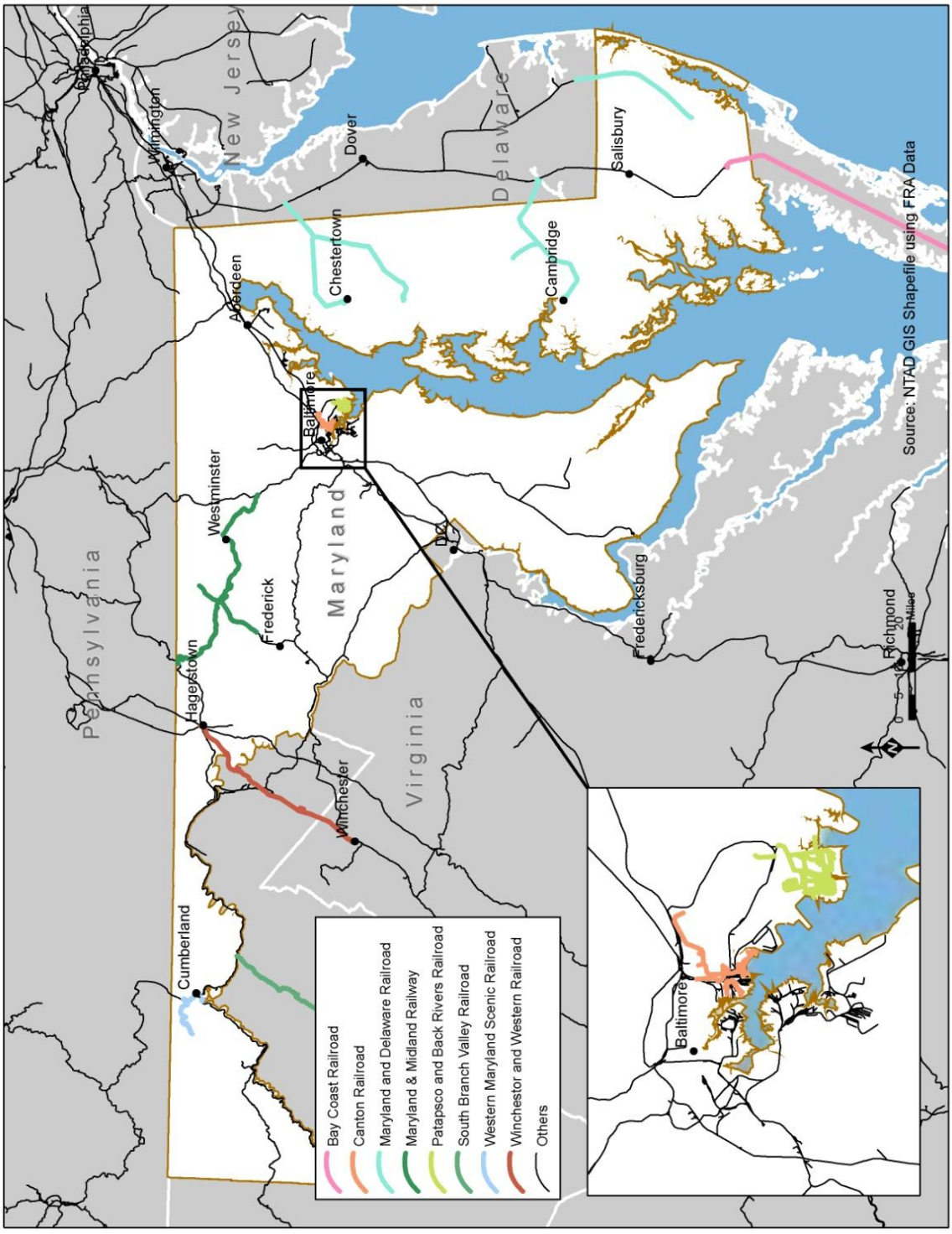


Figure 5 Overview of Maryland's Class III and Terminal Railroads. Source: Cambridge Systematics from the National Transportation Atlas Database using FRA data

Enhance the safety and security of the rail network

Because rail is used to carry heavy commodities and hazardous goods, rail incidents can cause catastrophic damage. Private railroad operators are required to comply with strict regulations, which mandate every carrier to have in place safety measures and plans to protect people, places, and infrastructure if hazardous materials are being transported.

GOAL: SAFETY & SECURITY - Rail

MEASURES:	CY2013	TREND
Number of non-fatal crashes at at-grade rail crossings	10	First year of reporting this measure
Number of fatal crashes at at-grade rail crossings	0	0 in CY2012 and 4 in CY2011
Number of public and private at-grade highway-rail crossings	1,261	Down from 1,286 in CY2012
Number of hazardous materials release incidents	1	First year of capturing the measure as a freight system performance measure.
Source: FRA		

Table 6 Rail Safety & Security measures

As a result of the Rail Safety Improvement Act of 2008 (RSIA), all Class I railroads are required to install Positive Train Control (PTC) systems on tracks that carry passengers or toxic-by-inhalation (TIH) materials by 2015. PTC systems are designed to use technology to automatically stop, slow down, or alert a train conductor before certain accidents, such as derailments, occur due to excessive train speed, trains entering track segments when repairs are being made or onto a track where a switch has been left in the wrong position, and train-to-train collisions. The Federal Railroad Administration (FRA) has received PTC Implementation Plans, mandated through RSIA, from 41 railroads, including CSX and NS. FRA continues to provide assistance in the implementation of PTC through supporting both laboratory and field PTC system development and implementation testing.

Maintain and enhance reliable rail freight networks

GOAL: QUALITY OF SERVICE - Rail

MTA owns about 83 miles of railroad short lines in active freight service on the Eastern Shore, operated by the MDDE. MDDE is responsible for routine track inspection and maintenance, and minor repairs. MDOT leads coordination with the operator and manages all agreements. The MTA is responsible for heavy maintenance and major capital projects. MTA staff also provides engineering, legal, and real estate support. Through the MTA capital program, MDOT and MTA provide funding for regular inspection and repair of grade crossings and structures (i.e., bridges and culverts) on the MTA-owned lines. MDOT and MTA respond to emergency repairs.

Recent quality of service efforts focused on:

- inspections and repair,
- replacement of obsolete or failed infrastructure to meet FRA requirements
- support continuity of service, and
- provide for the safe, reliable movement of trains and vehicular traffic at grade crossings.

The MTA and MDOT are currently engaged in efforts to identify needs and develop a longer-term program of capital improvements and routine maintenance that would improve infrastructure and maintain a state of good repair to ensure continued safe and reliable rail freight operations.

Support a healthy and competitive Maryland economy

Rail provides efficiencies in moving freight, which translates to cost savings for the businesses that ship by rail. Many of the everyday goods and commodities that keep Maryland's economy going are transported by rail. This is true for Maryland's short line railroads which help support Maryland's economy and competitiveness in the region.

GOAL: ECONOMIC PROSPERITY - Rail

MEASURES:	CY2013	TREND
Number of shortline carloads on Maryland owned rail	2,148	16.5% increase over CY2012
Source: MDOT		

Table 7 Rail Economic Prosperity measures

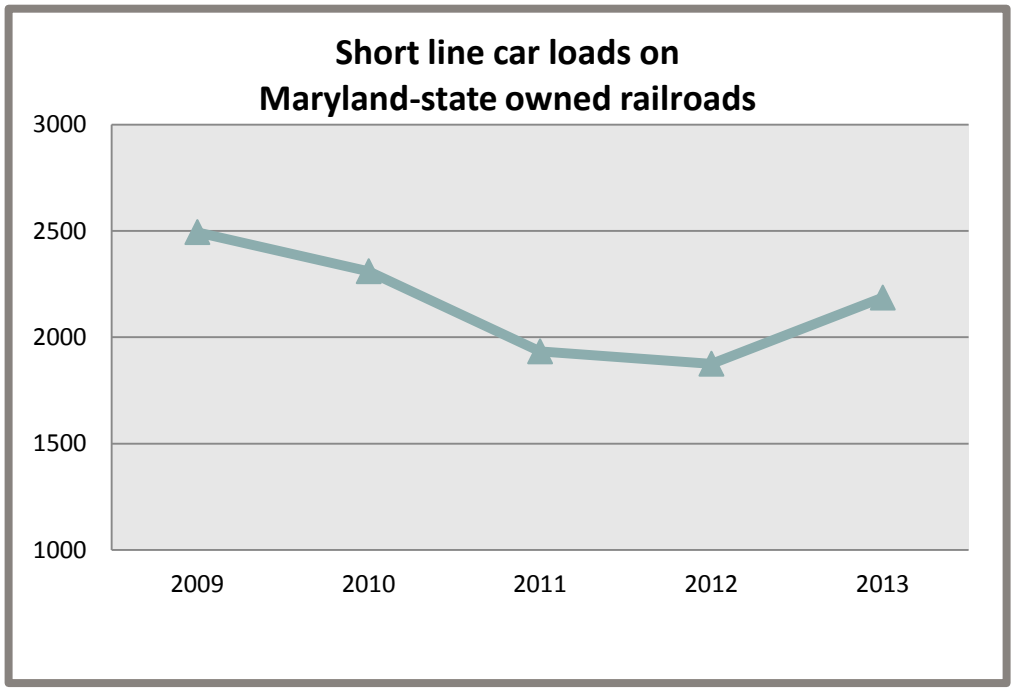


Figure 6 Short line car loads Source: MDOT

Freight System Performance
Marine

Maryland's economy is connected to the global economy by cargo and container ships carrying maritime freight. Over 80 percent of global trade moves by water. Imported goods and commodities are destined for points beyond Maryland, via rail and trucks further connecting the State's economy with larger regions.

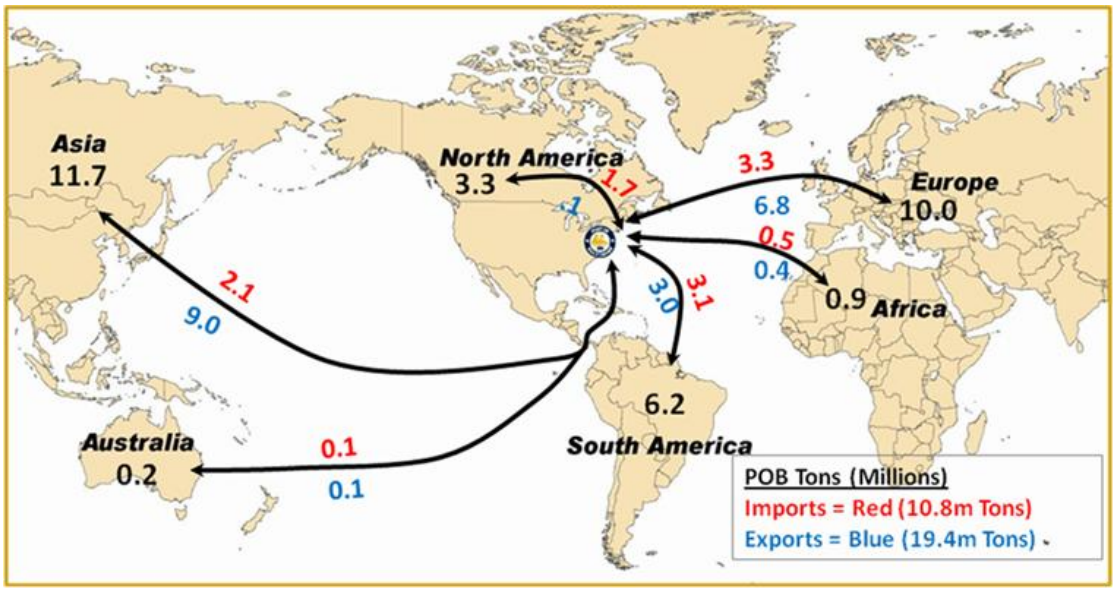


Figure 7: Exports and Imports tonnage through the Port of Baltimore in 2013. Source: MPA

Maryland's maritime activity is primarily concentrated in the Port of Baltimore, with a number of other commercial docks in the state. The United States Army Corps of Engineers estimates approximately 128 active commercial docks statewide, of which about three dozen private facilities (including cargo, shipyards, and ready reserve vessel moorings) are located near the Port of Baltimore.

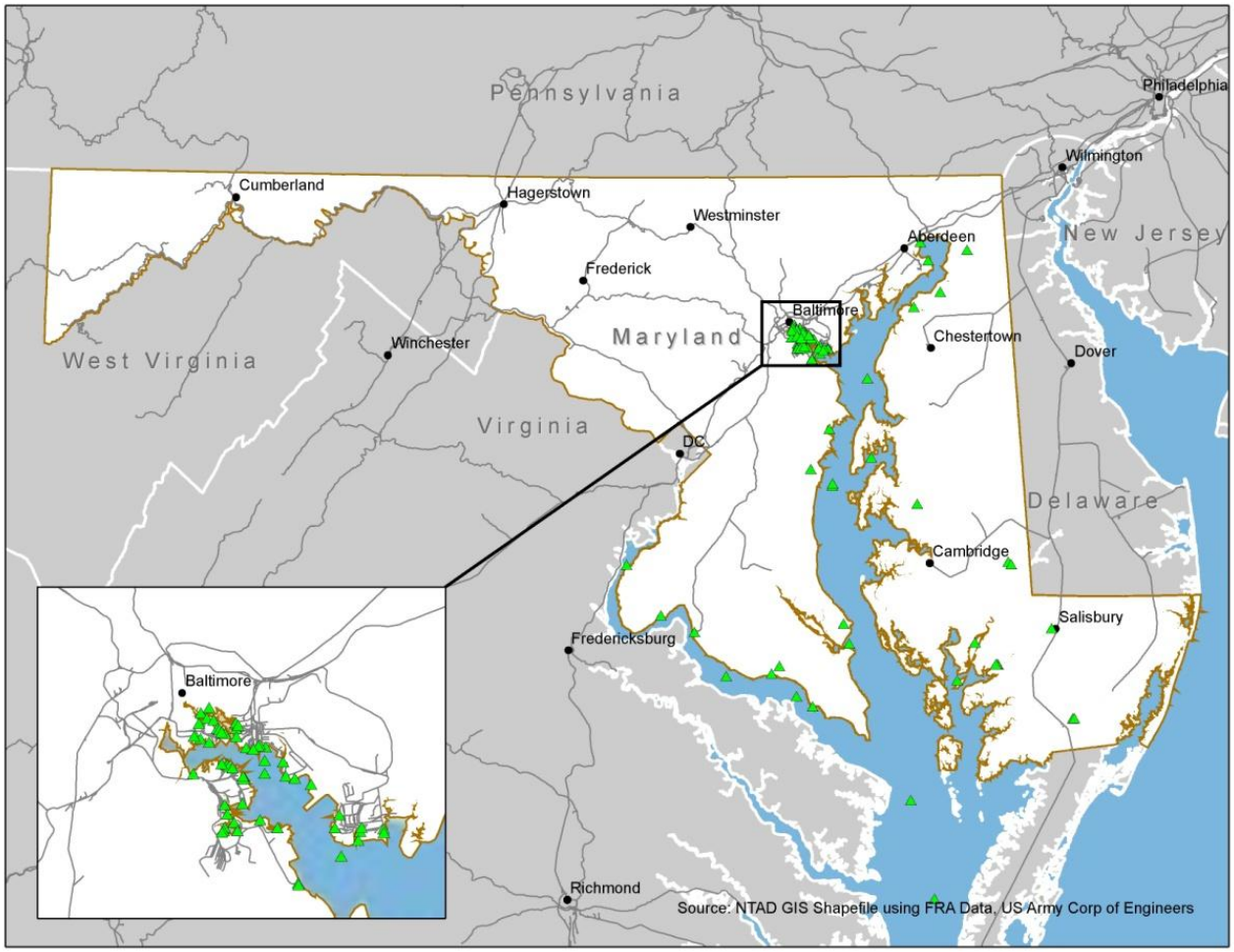


Figure 8: Active Docks and Open Water Positions. Source: Cambridge Systematics

Enhance the safety and security of the ports

MPA has received an overall rating from the Coast Guard of "Excellent" for the sixth straight year in their compliance with the Maritime Transportation Security Act of 2002. During their annual and comprehensive security exam, the Coast Guard praised all of the Port's public facilities: Dundalk, Seagirt, North Locust Point, South Locust Point (including the Cruise Maryland passenger terminal), and the Fairfield and Masonville marine terminals, for establishing and meeting their security measures.

GOAL: SAFETY & SECURITY - Marine

MEASURES:	CY2013	TREND
MPA compliance with the Maritime Transportation Security Act of 2002	"Excellent" rating	Sixth year receiving "excellent" rating
Source: MPA		

Table 8 Marine Safety & Security measures

Preserve and maintain the State's existing maritime infrastructure and assets

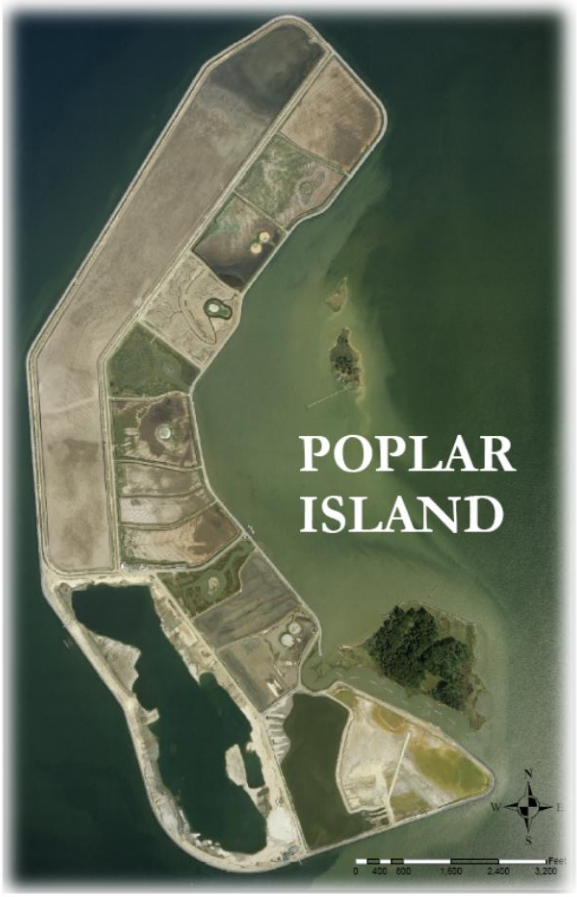
Maryland's Dredged Material Management Program strives to provide adequate dredged material placement capacity for harbor and bay dredging. To maintain 50-foot-deep shipping channels, approximately 1.5 million cubic yards of material must be dredged from the Baltimore Harbor annually. The State's approach shifted from placing dredged material in the open waters of the Chesapeake Bay to a sophisticated mix of strategies that includes wetland restoration, island recreation, upland placement, construction of carefully engineered containment facilities, and the innovative reuse of dredged material. The dredging program also relies on broad participation by communities, scientific experts, regulatory agencies, and business partners.

GOAL: SYSTEM PRESERVATION & PERFORMANCE - Marine

MEASURES:	Number of years until site if full
Dredge material placement capacity remaining for	
Harbor	18.1
Poplar Island Site Material	15
Source: MPA, Attainment Report	

Table 9 Marine System Preservation & Performance measures

Poplar Island, located in the Chesapeake Bay, has become a national model of environmental restoration. It is the site of a cutting-edge solution for the long-term challenge faced by all ports - what to do with the certain dredged material from shipping channels.



Thanks to the use of clean dredged material from the Port of Baltimore's shipping channels, the loss of the island through erosion has been reversed. The process involves placing, shaping, and planting some 40 million cubic yards of dredged material on and around the island remnants, within a dike constructed to approximate the island's footprint in the year 1847.

The restoration of Poplar Island includes a variety of measures to provide homes for wildlife, including the creation of upland and wetland habitats. Biologists and citizen groups have joined together to provide underwater and wetland grasses for crabs and fish; trees and shrubs for colonial nesting wading birds; and sand and broken oyster shells for colonial ground nesting birds.

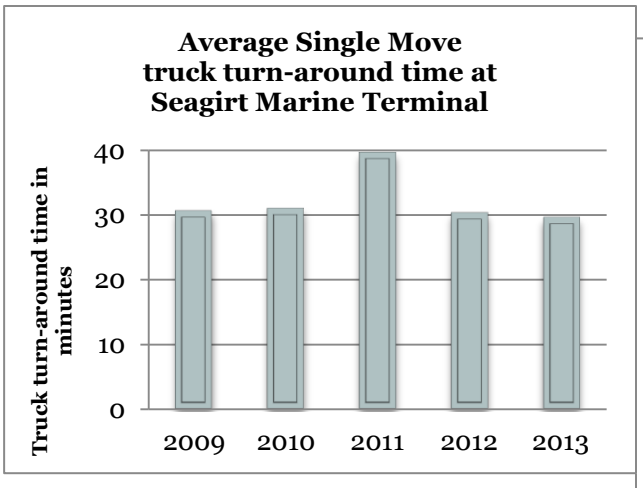
Maintain and enhance a reliable marine transportation system

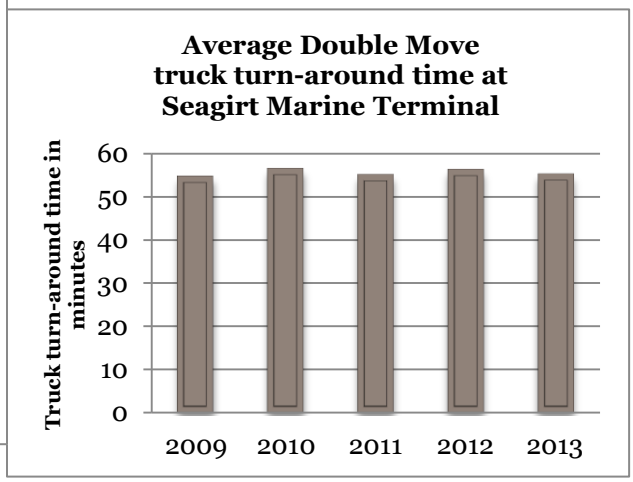
GOAL: QUALITY OF SERVICE - Marine

Truck turn-around time is a measure of the efficiency and operation of the Port of Baltimore's Seagirt Marine Terminal. Reductions in turn-around times improve throughput capacity, facilitate competitively priced truck service from the terminal, and help lower truck idling with a positive impact on air quality.

MEASURES:	CY2013	TREND
Average truck turn-around time at Seagirt Marine Terminal - Singles - Doubles	 29.2 minutes 54.4 minutes	Steady yearly decrease and the lowest time per a pick-up or drop-off since tracking started in 2001
Source: MPA		

Table 10 Marine Quality of Service measures





Support programs that conserve and enhance Maryland's natural resources

The goal of MPA's "Mid-Atlantic Dray Truck Replacement Program" is to reduce air pollution and greenhouse gases from the transporting of goods to and from the Port of Baltimore. The program provides commercial truck owners with up to $20,000 toward the purchase or lease of a newer vehicle with an engine that meets or exceeds 2007 EPA emissions standards.

GOAL: ENVIRONMENTAL STEWARDSHIP - Marine

MEASURES:	CY2013	TREND
Mid-Atlantic Dray Truck Replacement Program	65 trucks replaced	Since start of the program in 2011, 81 trucks have been replaced.
Source: MPA		

Table 11 Marine Environmental Stewardship measures

The MPA also opened the 11-acre Masonville Cove nature area on a site that used to be one of the most contaminated areas in the Baltimore Harbor. Following the removal of invasive plants, unhealthy trees, and dangerous and hazardous debris, the area is now capped with clean soil native trees, shrubs, and wetland plants. Allowing for passive recreational use, the nature area provides for walking trails, fishing from a designated pier, and bird-watching. The nature area is adjacent to a new dredge material containment site that will eventually become a marine terminal through a federally funded project.

Acres of Wetlands or Wildlife Habitat Created, Restored, or Improved since 2000.

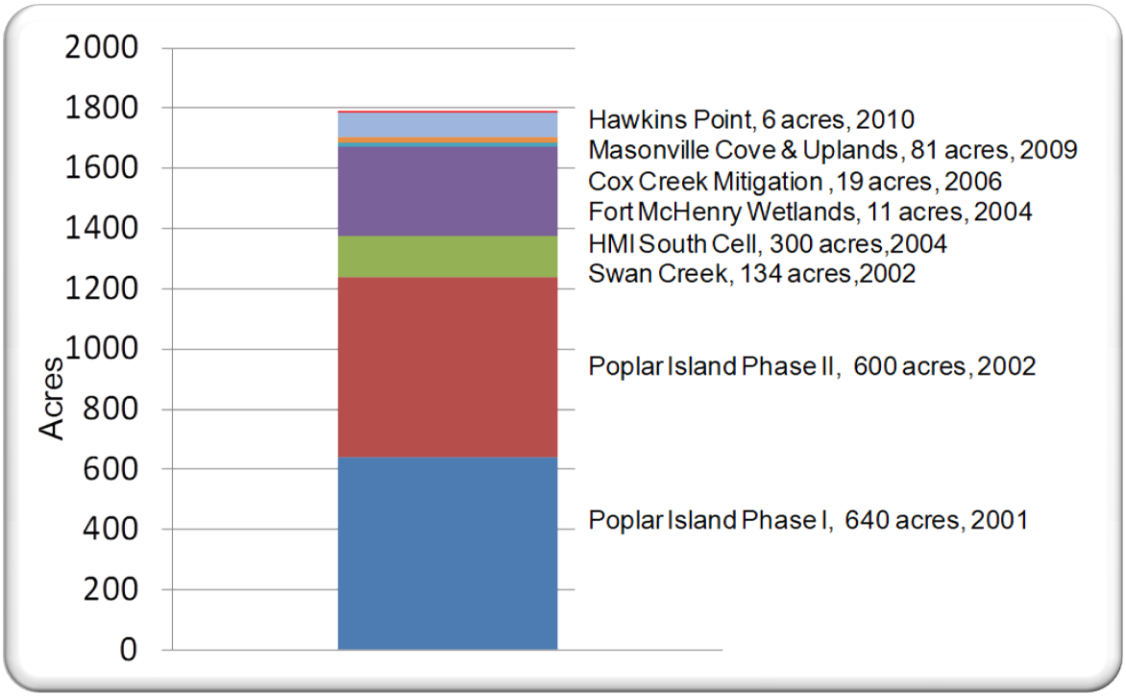


Table 12 Marine Environmental Stewardship measures

Support a healthy and competitive Maryland economy

Many factors outside MPA's influence affect freight movement, such as national and world economic trends, labor costs (in Maryland and at competing ports), value of the U.S. dollar, rail and highway service rates, prolonged weather conditions and changes in vessel sizes. Tracking cargo trends supports MPA's management decisions and helps assess the economic impact of freight activity occurring at the Port of Baltimore and MPA terminals.

GOAL: ECONOMIC PROSPERITY - Marine

The decision by Amazon.com to locate their 1,000,000 square foot fulfillment center near the Port of Baltimore is beneficial to the Port and Amazon.com. The location near the Port ensures that Amazon has access to the international market through shipments of containers filled with consumer goods to distribute to customers. This, in turn, benefits the Port as additional cargo brings the demand for more jobs and economic benefits. As MPA Executive Director Jim White noted, "Having a distribution center located in Baltimore should provoke the interest of ship owners and gives the Port a lot more marketability to container carriers."

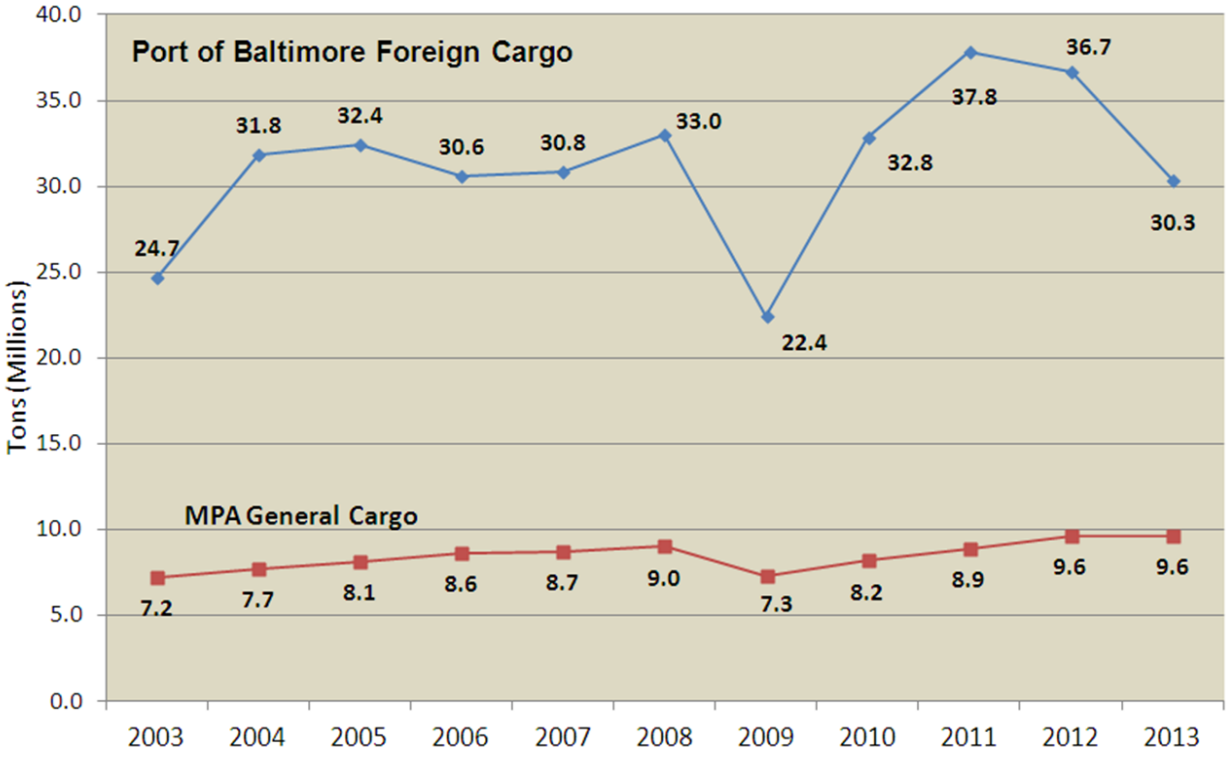


Figure 9 Cargo Tonnage at the Port of Baltimore in 2013. Source: MDOT and MPA

Provide options for the movement of goods that support communities and quality of life.

As global supply chains continue to evolve, intermodal shipping will likely play a larger role in the shipment of goods. The expansion of the Panama Canal will allow larger ships carrying additional containers, which will result in the increased need for intermodal facilities. Intermodal shipments offer many benefits over traditional long distance trucking or rail. Combining modes creates efficiencies that benefit both the environment and highway mobility in areas around ports. Moving containers via rail into and out of the Port of Baltimore will reduce emissions and alleviate truck congestion.

GOAL: COMMUNITY VITALITY - Marine

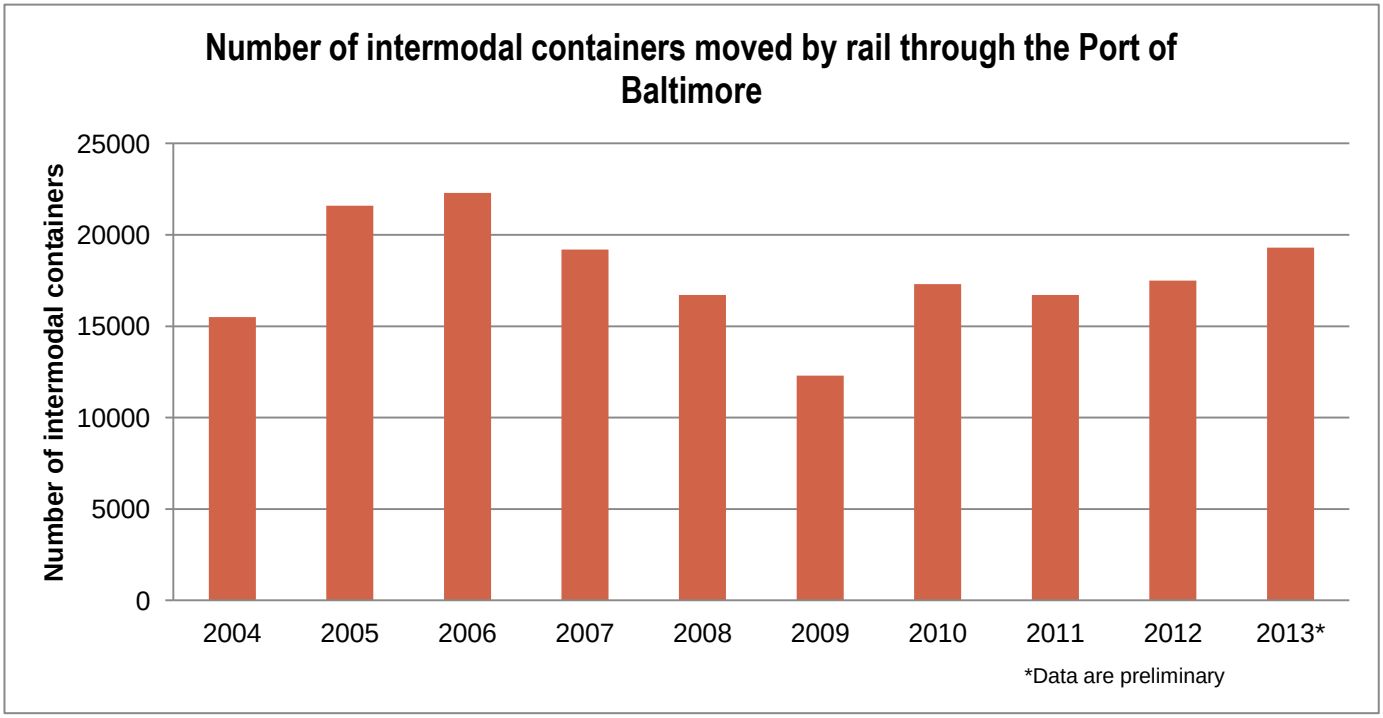


Figure 10: Number of Intermodal Containers moved by rail through the Port of Baltimore. Source: MPA

Freight System Performance
Air

Air cargo service provides the fastest shipment and delivery of highest value goods for the most important sectors of Maryland's economy. Cargo travels by way of dedicated aircraft or in the belly of passenger planes.

The MAA owns and operates BWI Marshall and Martin State Airports, and inspects and licenses the 34 other public-use airports in the state. Scheduled cargo service is offered from BWI Marshall and Salisbury-Ocean City Wicomico Regional Airports.

Support a healthy and competitive Maryland economy

The MAA fosters the vitality of aviation statewide and promotes safe and efficient operations, economic viability, and environmental stewardship. MAA does this by providing friendly, convenient facilities and customer services, and developing enhanced domestic and international passenger and cargo opportunities through intermodalism and state-of-the-art technology.

GOAL: ECONOMIC PROSPERITY - Air

MEASURES:	CY2013	CY2012	CY2011
Total Air Tonnage at BWI Marshall:	108,978 metric tons	112,939 metric tons	108,644 metric tons
Number of nonstop airline markets served by BWI Marshall:	73	76	75
Source: MAA			

Table 13 Air Economic Prosperity measures

Whether shipping seafood, produce, flowers, pharmaceuticals or any other commodity that requires temporary cold storage, BWI Marshall is equipped to provide on-airport services to ensure that the product is temperature-controlled immediately upon unloading or prior to the loading of the aircraft.

Cargo amenities include:

- Ten cargo buildings offering 414,906 square feet of warehouse space;
- Direct nose-in access for 15 freighter positions;
- A cold storage facility with direct ramp access; and
- Air cargo ramps accommodating up to 24 aircraft.

Service by BWI Marshall Airport's largest carrier, Southwest Airlines, benefits passengers and their baggage. Southwest Airlines operates a competitive air cargo operation that maximizes its increasing reach into large urban markets serving over 90 destinations across the country.

Freight System Performance
Freight Demand

Maryland's geographic location in the heart of the Mid-Atlantic region coupled with expected population and economic growth will result in an unprecedented amount of goods movement into, out of, within, and through the State in the years to come.

Maryland is the fifth most densely-populated state in the nation. The State's most populous jurisdictions, including Montgomery and Prince George's counties and Baltimore City have significant density in their urban centers where critical first and last mile issues exist for goods movement. Between 1980 and 2007, Maryland's population grew by 33 percent to 5.6 million representing approximately 1.9 percent of the U.S. population. Between 2000 and 2012 its population grew by 11 percent to 5.9 million. According to the Maryland Department of Planning, in each of the last two years, Maryland's population growth was slightly above the national average. By 2035, a 15 percent increase in population is forecasted with the largest share of future growth expected in the metropolitan Washington region. This population growth will continue to drive freight demand as the additional Maryland households demand more consumer goods and individuals and businesses increasingly demand on-time delivery of goods. An efficient freight network in Maryland to meet this anticipated demand will be critical to the economy in the short and long-term.

Established industry leaders like W.L. Gore, Hewlett-Packard, Domino Sugar, Under Armour, Volvo Powertrain and emerging enterprises such as Vorbeck, Oculis Labs and Miltec UV benefit from overnight trucking access to one-third of the U.S. population due to their locations.

Partly due to population growth, Maryland's economy has consistently grown since the depths of the recent recession. Bureau of Economic Analysis data shows that Maryland's Real Gross Domestic Product (GDP) outperformed the other states in the BEA's Mideast region in 2012, growing at 2.4 percent over 2011.[1] Much of this growth is in the freight-dependent industries located in Maryland. Maryland's diverse community of manufacturing companies produces everything from handcrafted guitars to spices. Businesses that rely on trucking are largely concentrated along the I-95 corridor and around the Baltimore and Washington beltways.

Additionally, freight-dependent industries such as agriculture and mining continue to play an important role in supporting local jobs. Almost 13,000 family farms and over 6,000 watermen comprise a thriving agriculture and aquaculture industry. Perdue Farms, headquartered in Salisbury, Maryland, with annual sales in excess of $4.6 billion, is the third largest poultry company in the U.S. On the Eastern Shore, a growing viticulture industry includes 38 wineries. Vineyards and poultry growers are just two examples of producers that rely on a safe and efficient freight network to get their goods to market.

The continued economic growth and population rise in Maryland is expected to bring robust growth in shipments of mixed freight, including consumer goods and service sector supplies directly tied to growth. Machinery, mixed freight and pharmaceuticals are the most important intrastate commodities in terms of value. The value of intrastate machinery shipments is expected to grow slowly with mixed freight and pharmaceuticals growing more robustly. Gravel, scrap and non-metallic mineral products stand out as major drivers of the internal freight tonnage while coal shipments are expected to increase.

[1] http://www.bea.gov/newsreleases/regional/gdp_state/gsp_newsrelease.htm

Freight Measures Index

Goal Area	Objective	Performance Measure	Page
Safety and Security – Marine	Enhance the safety and security of the ports	MPA compliance with the Maritime Transportation Security Act of 2002	33
System Preservation and Performance – Highway	Preserve and maintain the State's existing highway freight infrastructure and assets	Number or percent of bridges that are structurally deficient	20
		Percent of roadway miles with acceptable ride quality	20
		Weighed vehicles found to be overweight	20
System Preservation and Performance – Marine	Preserve and maintain the State's existing maritime freight infrastructure and assets	Dredge material placement capacity remaining for Harbor and Poplar Island	34
Economic Prosperity – Rail	Support a healthy and competitive Maryland economy	Number of short line carloads on Maryland owned rail	30
Economic Prosperity – Marine	Support a healthy and competitive Maryland economy	Port of Baltimore Foreign Cargo	40
Economic Prosperity – Marine	Support a healthy and competitive Maryland economy	MPA General Cargo Tonnage	40
Economic Prosperity – Air	Support a healthy and competitive Maryland economy	Total air tonnage at BWI Marshall Airport	43
		Number of nonstop airline markets served by BWI Marshall	43
Environmental Stewardship – Marine	Support programs that conserve and enhance Maryland's natural resources	Mid-Atlantic Dray Truck Replacement Program	37
		Acres of wetlands and wildlife habitat created, restored, or improved since 2000	38
Community Vitality	Provide options for the movement of goods that support communities and quality of life	Intermodal containers moved by rail through the Port of Baltimore	41

Conclusion

As the economy continues to rebound, a robust freight system that is able to meet current and future freight transportation demands supports the State's anticipated economic and population growth. The ability to deliver goods in a safe, cost effective, and reliable manner benefits Maryland businesses and helps to level goods and commodity pricing. An efficient, multimodal freight network will keep goods, like medical supplies delivered to hospitals or soybeans harvested from farms, moving.

This report identifies how each mode within MDOT performed against established measures. These performance measures are intended to create a common point of reference for the discussion of freight and to further awareness of freight in Maryland among transportation stakeholders and policy makers. Performance measures, no matter how sophisticated, can never tell the full story and should not be substituted for detailed analysis of freight operations and planning.

To comprehensively assess the Maryland Freight System, new measures will need to be developed, particularly with respect to the rail system. Practicality has been and will continue to be a key concern in determining which freight measures to track. It is important that the measures ultimately align with the needs and priorities of MDOT, its modal administrations, and system users. Future goods movement plans and freight performance measure reports will detail these modal interconnections and the connections to economic development and investment to provide a fully realized picture of the freight impact in Maryland.